

Air Quality Issues – The view from Wichita, Kansas



Wichita Department of Environmental Services



Protecting People...

Your day-to-day activities expose you to pollutants or other environmental health risks.

The Environmental Department works to ensure the health and safety of the Community.

Our job is to identify, assess, and reduce or eliminate health risks associated with air, water, food, chemicals, and deteriorating property.

Wichita Department of Environmental Services



Protecting the environment...

Monitoring
Education
Code enforcement

To protect and improve the Community's
environmental quality.

Environmental Department Programs

Air Quality

Animal Control

Child Care Licensure

Food Protection

Environmental Code Enforcement

Environmental Assessment & Remediation

Water Quality

Air Quality Program

- Air monitoring network for National Ambient Air Quality Standards (6 criteria air pollutants)
- Measurement of urban air toxics
- Inspection of air emission sources
- Investigate all air quality complaints in Wichita & Sedgwick County

Air Quality Program

- Conduct indoor air quality investigations
- Perform asbestos inspections at demolition sites
- Respond to hazardous material incidents
- Provide education to citizens on air quality topics

Local Health Implications of Air Pollution*

In Sedgwick County-

- Approximately 36,000 (8% of the population) have asthma
- Over 13,000 people have chronic bronchitis
- Nearly 5,000 cases of emphysema
- Over 100,000 citizens have cardiovascular disease

- *American Lung Association report

National Ambient Air Quality Criteria Pollutants

- Ozone
- Particulate Matter (PM 2.5 & PM 10)
- Carbon Monoxide (CO)
- Nitrogen oxides (NO_x)
- Sulfur oxides (SO_x)
- Lead (Pb)

Air Pollutants of Local Concern

Ground Level Ozone (O_3)

Particulate Matter

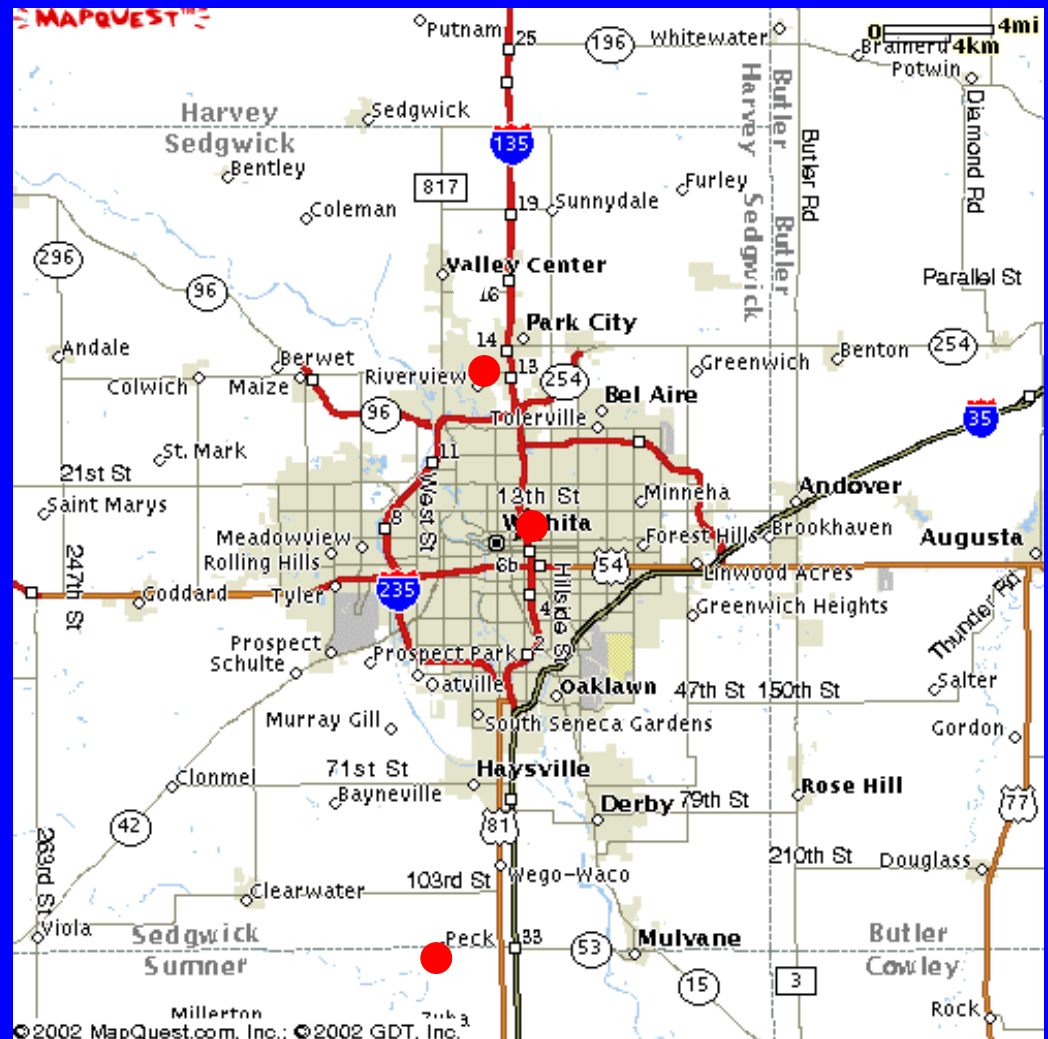
- PM 2.5
- PM 10

Air Toxics?

CAA Attainment Status

- **Despite the stricter new federal ozone standard, the Wichita urban area is currently in compliance with the Clean Air Act for all monitored pollutants.**
- **Ozone continues to be the criteria air pollutant of greatest concern for the urban area.**

● Ozone Monitor sites



Air Monitoring Network



Air Toxics Sampling Project

- Sampling for approximately 60 volatile organic compounds (VOC's) listed by EPA as urban hazardous air pollutants
- Program uses EPA Method TO-15 for sampling and analysis protocols
- Data can be used for trend analysis – data spans from 1989 to present



Source Inspections



Inspect industry for
compliance with Federal, State
& local air quality regulations

What Makes a Bad Air Day (Ozone) in South Central Kansas?

Hot temperatures...

+

Sunny skies...

+

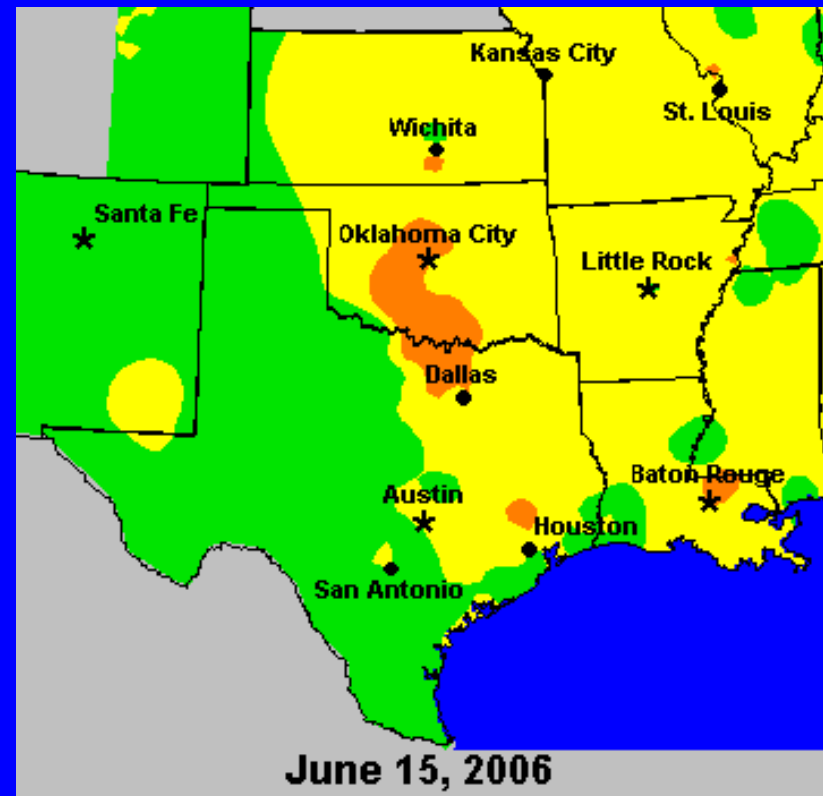
South winds???

=

unhealthy ozone levels

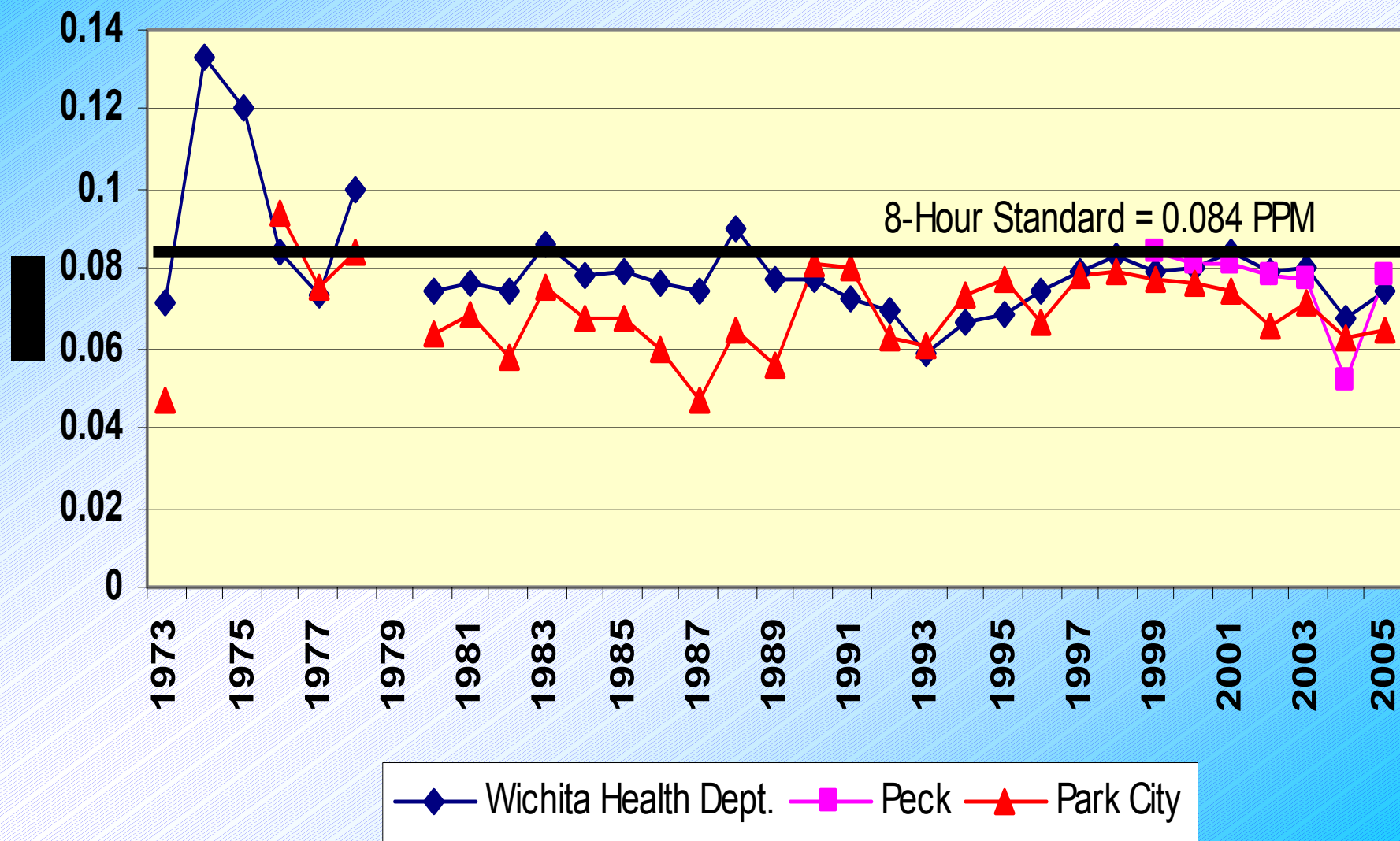
Wichita Dept of Environmental Health and KDHE are working together to determine:

- What local sources are significant contributors
- The impact of weather and transport from other upwind urban/industrial areas



Ozone

4th High 8 Hour Average



Health Effects of Exposure to Ozone

- Coughing
- Nose and throat irritation
- Chest pain
- Reduced lung function
- Increased susceptibility to respiratory illnesses
- Aggravation of asthma
- Children and people with chronic lung diseases are particularly at risk



More Health Impacts



- Every day, the average adult breathes over 3,000 gallons of air - children breathe even more air per pound of body weight (higher metabolism rates).
- Ozone can damage lung tissue and reduce lung function.
- Ozone is a known asthma trigger; it can also create sensitivity to other allergens.
- Eight percent of all kids in the U.S. have asthma and Asthma is the fastest growing childhood disease in the U.S.



AIR QUALITY is An Immediate Issue

You wouldn't drink polluted water,
so why would you breathe polluted air?

(How long can you hold your breath?)

Economic Effects of Ozone – NonAttainment (Private Sector)

- Increased costs to industry/commerce for air pollution controls.
- Limits on existing business expansion plans
- New businesses have to show they don't contribute to increased air pollution.
- Ozone is responsible for billions of dollars in agricultural crop losses each year in the United States.
- Overall drag on economic development

Economic Effects of Ozone - NonAttainment

(State & Local government)

- Possible annual Motor Vehicle Inspection & Maintenance (I & M) Programs.
- More extensive Administrative and Planning requirements for transportation and other services.
- Less local control of funding and priorities.
- Non-attainment would place sanctions on the entire MSA (Sedgwick, Sumner, Harvey and Butler Counties).

Economic Effects of Ozone – Non-Attainment (Overall)

- Our analysis showed that the annual economic impact of Wichita becoming an ozone non-attainment area would be about \$10,000,000 annually for at least ten years.*
- This analysis was conducted at the request of the Wichita Air Quality Improvement Task Force.
- The nonattainment area would include Sedgwick, Harvey, Butler, and Sumner counties.
- *Based on a population-to-cost-basis comparison ratio of seven U.S. cities

Actions Taken to Date

- City Manager's Air Quality Improvement Task Force formed and holding regular meetings (since 2001)
- “Real Time” Air Quality Data on the Web from local air monitoring sites (2002) www.wichita.gov/aq
- Report to City Management with list of strategies to reduce urban ozone levels (2004)
- Emission Inventory of air pollution sources and activities in Sedgwick County (2004)
- Voluntary Vehicle Emissions Testing (2004 - 2006)

Wichita

Air Quality Improvement Task Force

Community Representatives:

- **Chamber of Commerce**
- **Major Local Industries**
- **Wichita State University**
- **Kansas State University (SBEAP)**
- **USD259**
- **Sierra Club**
- **Interested Citizens**

Government Representatives:

- **City of Wichita**
- **Sedgwick County**
- **Kansas Dept of Health & Environment**
- **Kansas Dept of Transportation**
- **US EPA, Region VII**
- **US Dept of Transportation**

**VOLUNTARY VEHICLE
EMISSIONS TESTING**

HERE



STRO



Voluntary Vehicle Emissions Testing 2005

- Six events during the season

- Raytheon May 7th18 vehicles
- Raytheon June 18th66 vehicles
- KSU Extension Office July 9th8 vehicles*
- Aley-Stanley Neighborhood City Hall August 6th ...12 vehicles
- KSU Extension Office September 10th15 vehicles
- KSU Extension Office October 1st10 vehicles

Voluntary Vehicle Emissions Testing 2005

Totals for the year

- Total Vehicles Tested (Emissions) – 129
- Passing Emissions Test – 97
- Total Vehicles for Gas Cap Test – 99
- Passing Gas Cap Test – 82
- Also tested 4 Sedgwick County Fleet vehicles
- (City of Wichita fleet vehicles tested in 2004)

Recommendations

- City and County consider purchase of cleaner fuels and more efficient vehicles.
- Consider funding of gas cap replacement project.
- Continue voluntary vehicle emission testing program
- Install Stage 1 and Stage 2 emission controls on City fuel storage tanks.

Recommendations

- Continued public awareness and education efforts
- Continue to work with local industry to encourage voluntary emissions reductions
- Seek KDHE and EPA assistance for further identifying emissions sources and voluntary emission control strategies.

Challenges/Frustrations in Air Quality

- All the magic bullets that are available are expensive, require mandatory actions and are primarily available to nonattainment areas.

The Good News

- There was a slight downturn in ozone concentrations in 2004 & 2005 – 2006???
- Federal standards will require cleaner fuels (gas & diesel) and more efficient on and off road vehicle engines.
- New federal standards are coming on line regarding emissions controls for smaller businesses (drycleaners, plating facilities, machine shops, print shops, etc) .
- Several local businesses on the Task Force are now using biodiesel and ethanol to help improve air quality.

New Assignment for Task Force

“Sierra Club Requests Council Action”

July 11, 2006 the Sierra Club urged the City Council to:

- Adopt US Mayors Climate Protection Agreement**
- Consider joining Sierra Club’s Cool Cities Initiative**

Item referred to City Manager’s Air Quality Improvement Task Force for evaluation and recommendation

Evaluation of Request

Environmental Services Department:

- **Gathered Greenhouse Gas information, evaluated US Conference of Mayors Climate Protection Agreement and Cool Cities Initiative; researched Internet**
- **Contacted Municipalities, Agencies and Organizations**
- **Obtained and reviewed 15 Municipal Plans and Reports**
- **Identified major City improvements made since 1990**
- **Discussed issues with City departments**
- **Convened City Manager's Air Quality Improvement Task Force for Information and Recommendations**

The Greenhouse Effect



Some solar radiation is reflected by the earth and the atmosphere

Solar radiation passes through the clear atmosphere



Most radiation is absorbed by the earth's surface and warms it

Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the earth's surface and the lower atmosphere.



Infrared radiation is emitted from the earth's surface

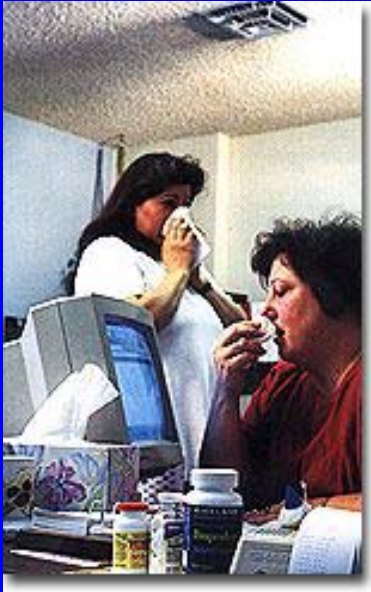
The Options

- #1 Adopt the U.S. Mayors Agreement
- #2 Continue As Is
- #3 Adopt a Wichita Solution
- Develop and implement a local strategic plan for air quality improvement with focus on ozone to remain in NAAQS compliance

Major City Energy Efficiency Improvements – Past 10 years

- **\$10 million bus and van change out**
- **Fuel changes for buses**
- **City building energy reduction initiatives**
- **Stop light change outs**
- **Street light change outs**
- **Intelligent transportation system**
- **Vehicle fuel change to ethanol**
- **Landfill methane recovered and sold to private company for fuel**

Indoor Environmental Quality



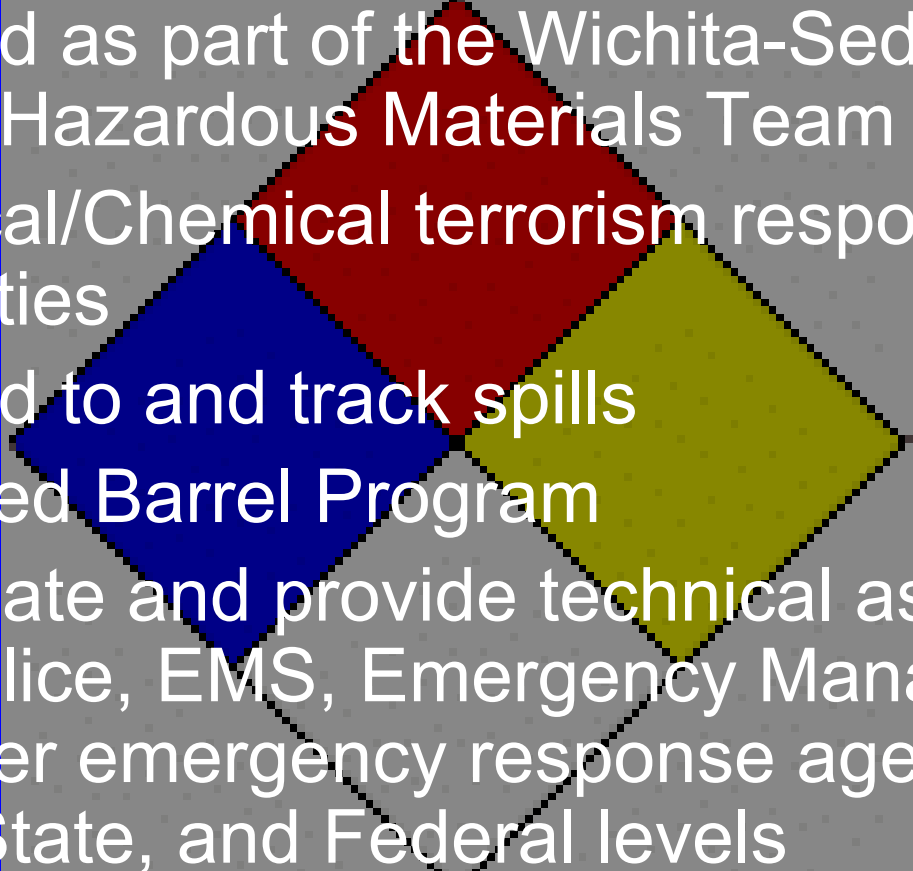
Investigate indoor environments for conditions which could adversely affect occupant health. The assessment process includes potential risk and recommended solutions.

Asbestos Demolition Inspection



Buildings to be demolished are inspected throughout the process to verify compliance with Federal, State & Local asbestos regulations

Environmental Hazardous Materials Response Unit

- 
- Respond as part of the Wichita-Sedgwick County Hazardous Materials Team
 - Biological/Chemical terrorism response capabilities
 - Respond to and track spills
 - Orphaned Barrel Program
 - Coordinate and provide technical assistance to Fire, Police, EMS, Emergency Management, and other emergency response agencies at Local, State, and Federal levels





Complaint Response



Air Quality responds to a variety of ambient air complaints-

- Open burning
- Blowing dust/dirt
- Odors
- Smoke.

Complaint Response



Complaint Response



Public Education

- We provide presentations for
 - Educational groups (K-12, university, etc)
 - Civic groups
 - Local government
 - Other stakeholder groups



Citizens Can Help

- Report any open burning in the city or county
- Report excess smoke from industry
- Report fuel spills
- Keep all paints, solvents, chemicals & cleaners, whether at home or work, sealed when not in use

Keep Our Air Plain

- Fuel when it's cool (after 6pm)
- Don't top off gas tanks
- Don't idle vehicles unnecessarily
- Carpool, ride the bus, walk, bicycle
- Conserve electricity
- Put off lawn work until after 6pm
- Purchase *energy star* labeled products

Keep your car well maintained

- Maintaining your car will-
- help you protect your investment,
- improve vehicle performance,
- improve your gas mileage
- -- and also help fight smog.

Drive Responsibly

- Go Easy on the Brakes & Gas Pedal
- Avoid Long Idles
- Avoid Carrying Unneeded Items in the Trunk of the Car
- Avoid High Speeds
- Use the Air Conditioner Only When Necessary
- Use Overdrive for Highway Driving
- Keep Tires Properly Inflated & Aligned
- Get Regular Engine Tune-ups & Car Maintenance Checks

**The Health, Environmental,
& Economic Effects of Air
Pollution Reduce
the Quality of Life
for All Of Us**

QUESTIONS?

COMMENTS?

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Wichita Department of Environmental Services

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